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Abstract

SIX YEARS'WORKING EXPERIENCE OF THE MARCOULE PLANT FOR TREATMENT OF IRRADIATED FUEL

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The irradiated fuel treatment plant at Marcoule began treating rods from the pile G 1 in July 1958. These six years'experience of the plant in operation have led to the confirmation or revision of the original ideas concerning the process as well as the technology or methods of exploitation.

The process as a whole has suffered little modification, the performances having proved better than originally foreseen ; the only alterations made were justified by greater simplicity of operation, better nuclear security (criticality) or for technological reasons. The processes of plutonium reduction from valency IV to valency III by uranium IV, and of concentration of fission product solutions in the presence of formaldehyde, have always given complete satisfaction.

The initial concept of direct maintenance of the installations has been justified by experience. Certain maintenance jobs, originally considered impossible after the start of operations, have proved feasible and have been car-

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ried out under acceptable conditions ; a number of examples are given. From experience it has been possible to define optimal conditions for the design of these installations such as to provide a maximum in robustness and ease of maintenance. The advantages of continuonsly-operating equipment have been shown.

Certain installations have been altered in accordance with these new ideas.

Analytical checking in the laboratory has been profoundly modified, and the plans adopted are such that complete safety in work on radioactive solutions is compatible with a very good working speed. Experience has also shown the advantages of having a group on the spot to carry out short-term applied studies.

Finally, a strict working discipline and excellent collaboration with the radiation protection service have enabled us to reach the end of these six years, during some of which the exploitation was intensive, without irradiation accident.